SAMSUNG

DVD PLAYER

DVD-P230
DVD-P231
DVD-P331

SAMSUNG ELECTRONICS

HEADQUARTERS
105 Challenger Road, Ridgefield Park,
N.J.07660-0511
TEL: 1-800-SAMSUNG

SERVICE DIVISION
400 Valley Road, Suite 201, Mount Arlington,
NJ 07856
1-800-SAMSUNG (1-800-726-7864)
www.samsungusa.com

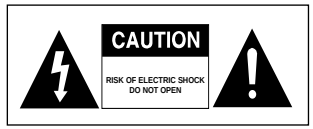
AK68-00113B

Important Safety Instructions

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any ventilation openings, Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding- type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. if the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a used, caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Precautions



TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER(OR BACK).
NO USER-SERVICEABLE PARTS ARE INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol indicates “dangerous voltage” inside the product that presents a risk of electric shock or personal injury.

This symbol indicates important instructions accompanying the product.

Do not install this equipment in a confined space such as a bookcase or similar unit.

WARNING : To prevent damage which may result in fire or electric shock hazard, do not expose this appliance to raim or moisture.

CAUTION : DVD PLAYERS USE AN INVISIBLE LASER BEAM WHICH CAN CAUSE HAZARDOUS RADIATION EXPOSURE IF DIRECTED. BE SURE TO OPERATE PLAYER CORRECTLY AS INSTRUCTED.

CAUTIONS

Caution: To prevent electric shock, match wide blade of plug to wide slot, fully insert.
Attention: Pour éviter les chocs électriques, introduíre la lame la plus large de la fiche dans la borne correspondante de la prise et pousser jusqu au fond.

This product satisfies FCC regulations when shielded cables and connectors are used to connect the unit to other equipment. To prevent electromagnetic interference with electric appliances, such as radios and televisions, use shielded cables and connectors for connections.

FCC NOTE (for U.S.A):

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect this equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This class B digital apparatus meets all requirements of the Canadian Interference -- Causing Equipment Regulations.

CLASS 1	**LASER PRODUCT**
KLASSE 1	**LASER PRODUKT**
LUOKAN 1	**LASER LAITE**
KLASS 1	**LASER APPARAT**
PRODUCTO	**LÁSER CLASE 1**

Precautions

CAUTION

THIS PRODUCT UTILIZES A LASER. USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE. DO NOT OPEN COVER AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

Note:

- This unit can be used only where the power supply is AC 120V, 60Hz. It cannot be used elsewhere.
- This DVD player is designed and manufactured to respond to the Region Management Information. If the Region number of a DVD disc does not correspond to the Region number of this DVD player, the DVD player cannot play the disc.
- This device is protected by U.S. patent numbers 4,631,603, 4,577,216, 4,819,098 and 4,907,093 and other intellectual property rights. The use of Macrovision's copy protection technology in the device must be authorized by Macrovision and is intended for home and other limited pay-per-view uses only, unless otherwise authorized in writing by Macrovision.
  Reverse engineering or disassembly is prohibited.

Handling Cautions

- Before connecting other components to this player, be sure to turn them all off.
- Do not move the player while a disc is being played, or the disc may be scratched or broken, and the player's internal parts may be damaged.
- Do not put a flower vase filled with water or any small metal objects on the player.
- Be careful not to put your hand into the disc tray.
- Do not place anything other than the disc in the disc tray.
- Exterior interference such as lightning and static electricity can affect normal operation of this player. If this occurs, turn the player off and on again with the POWER button, or disconnect and then reconnect the AC power cord to the AC power outlet. The player will operate normally.
- Be sure to remove the disc and turn off the player after use.
- Disconnect the AC power cord from the AC outlet when you don't intend to use the player for long periods of time.
- Clean the disc by wiping in a straight line from the inside to the outside of the disc.

Disc Storage

Be careful not to harm the disc because the data on these discs is highly vulnerable to the environment.

- Do not keep under direct sunlight.
- Keep in a cool ventilated area.
- Store vertically.
- Keep in a clean protection jacket.

Maintenance of Cabinet

For safety reasons, be sure to disconnect the AC power cord from the AC outlet.

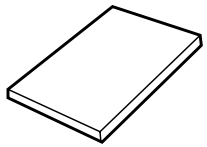
- Do not use benzene, thinner, or other solvents for cleaning.
- Wipe the cabinet with a soft cloth.

Before You Start

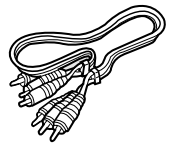
Accessories

Remote Control
(DVD-P230 : AH59-00092S)
(DVD-P231/331 : AH59-00092T)

Batteries for Remote Control (AA Size)
(4301-000117)



User's Manual
(AK68-00113B)



Video/Audio Cable
(AC39-42001R)

Install Batteries in the Remote

1. Open the battery cover on the back of the remote.
2. Insert two AA batteries. Make sure that the polarities (+ and -) are aligned correctly.
3. Replace the battery cover.

If remote doesn't operate properly:

- Check the polarity + - of the batteries (Dry-Cell)
- Check if the batteries are drained.
- Check if remote sensor is blocked by obstacles.
- Check if there is any fluorescent lighting nearby.

Table of contents

Setup
Important Safety Instructions ····2
Precautions ····3
Before you start ····5
General Features ····7
Disc Type and Characteristics ····8
Description-Front Panel ····9
Display Indicators ····10
Description-Rear Panel ····11
Tour of the Remote Control ····12

Connections
Choosing a Connection ····14

Basic Functions
Playing a Disc ····16
Using the Search & Skip Functions ····18
Using the Display Function ····19
Using the Disc and Title Menu ····20
Using the Function Menu ····21
Repeat Play ····22

Advanced Functions
Adjusting the Aspect Ratio (EZ View) ····23
Slow Repeat play ····25
Selecting the Audio Language ····26
Selecting the Subtitle Language ····27
Changing the Camera Angle ····28
Using the Instant Replay/Skip Function ····29
Using the Bookmark Function ····30
Using the Zoom & 3D Sound Functions ····31
MP3/WMA Play ····32
Program Play & Random Play ····34
Picture CD Playback ····35

Changing Setup menu
Using the Setup Menu ····37
Setting Up the Language Features ····38
Setting Up the Audio Options ····40
Setting Up the Display Options ····41
Setting Up the Parental Control ····42

Reference
Troubleshooting ····43
Specifications ····44
Warranty ····45

General Features

Excellent Sound
Dolby Digital, a technology developed by Dolby Laboratories provides crystal clear sound reproduction.

Screen
Both regular and widescreen(16:9) pictures can be viewed.

Slow Motion
An important scene can be viewed in slow motion.

Programmed Play
You can program tracks to play in desired order. (CD, WMA, MP3)

Parental Control
The parental control allows users to set the level necessary to prohibit children from viewing harmful movies such as those with violence, adult subject matter, etc.

Various On-Screen Menu Functions
You can select various languages (Audio/Subtitle) and screen angles while enjoying movies.

Progressive Scan
Progressive scanning creates an improved picture with double the scan lines of a conventional interlaced picture.

Easy View
Easy View can convert Letter Box images to full screen viewing on your conventional TV.

Digital Photo Viewer (JPEG)
You can view the Digital Photos on your TV.

Repeat
You can repeat a song or movie simply by pressing the REPEAT button.

MP3/WMA
This unit can play discs created from MP3/WMA files.

Instant Replay
This function is used to replay the previous 10 seconds of the movie from the current position.

Instant Skip
This function skips playback ahead 10 seconds.

NOTE

* Discs which cannot be played with this player.
  - DVD-ROM
  - DVD-RAM
  - CD-ROM
  - CDV
  - CDI
  - HD layer of super Audio CD
  - CDGs play audio only, not graphics.

* Ability to play back may depend on recording conditions.
  - DVD-R, +R
  - CD-RW
  - DVD+RW, -RW

COPY PROTECTION

- **Many DVD discs are encoded with copy protection. Because of this, you should only connect your DVD player directly to your TV, not to a VCR. Connecting to a VCR results in a distorted picture from copy-protected DVD discs.**

- This product incorporates copyright protection technology that is protected by methods claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Disc Type and Characteristics

This DVD player is capable of playing the following types of discs with the corresponding logos:

Disc Types (Logos)	Recording Types	Disc Size	Max. Playing Time	Characteristics
DVD	Audio + Video	5"	Single-sided 240 min. Double-sided 480 min.	• DVD contains excellent sound and video due to Dolby Digital and MPEG-2 system. • Various screen and audio functions can be easily selected through the on-screen menu.
		3 1/2"	Single-sided 80 min. Double-sided 160 min.	
AUDIO-CD	Audio	5"	74 min.	• CD is recorded as a Digital Signal with better audio quality, less distortion and less deterioration of audio quality over time.
		3 1/2"	20 min.	

Disc Markings

- Play Region Number
- NTSC broadcast system in U.S.A, Canada, Korea, Japan, etc.
- Dolby Digital disc
- Stereo disc
- Digital Audio disc
- DTS disc
- MP3 disc

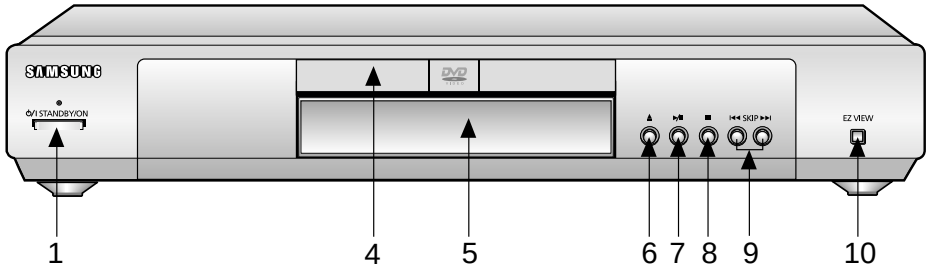
Play Region Number

Both the DVD player and the discs are coded by region. These regional codes must match in order for the disc to play. If the codes do not match, the disc will not play.

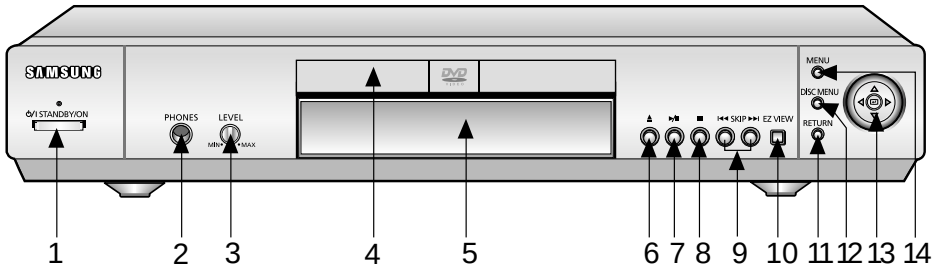
The Region Number for this player is described on the rear panel of the player.

Description-Front Panel

DVD-P230/DVD-P231



DVD-P331



Front Panel Controls

1. STANDBY / ON
- When the unit is first plugged in, the indicator lights. When STANDBY/ON is pressed on again, the light goes out and the player is turned on.

2. HEADPHONES JACK
- You can attach headphones here for private listening.

3. HEADPHONES VOLUME
- Use to adjust headphones volume level.

4. DISC TRAY
- Load the disc here.

5. DISPLAY
- Operation indicators are displayed here.

6. OPEN/CLOSE
- Press to open and close the disc tray.

7. PLAY/PAUSE (▶/II)
- Begin or pause disc play.

8. STOP (■)
- Stops disc play.

9. SKIP (⏮ / ⏭)
- Use to skip a scene or music.

10. EZ VIEW
- Easy View can convert Letter Box images to full screen viewing on your conventional TV.

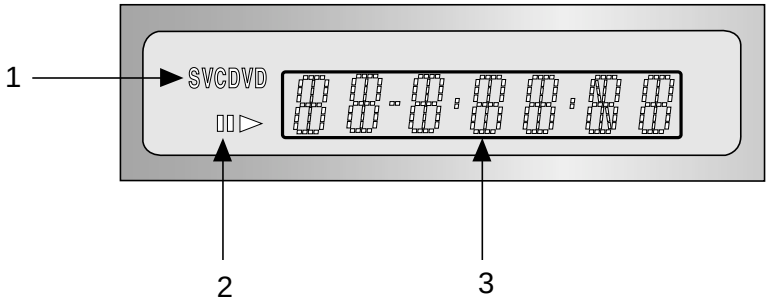
11. RETURN
- Returns to a previous menu.

12. DISC MENU
- Brings up the Disc menu.

13. ENTER/DIRECTION Button (UP/DOWN or LEFT/RIGHT Buttons)
- This button functions as a toggle switch.

14. MENU
- Brings up the DVD player's setup menu.

Display Indicators



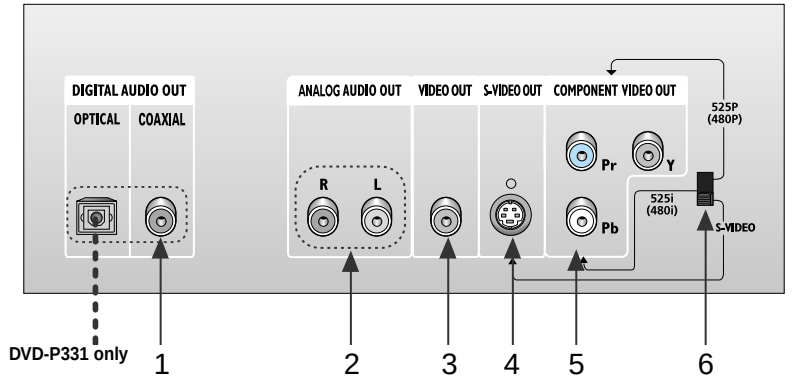
Front Panel Display

1. Disc type indicators

2. Play / Pause / Forward play

3. Displays various messages concerning operations such as PLAY, STOP, LOAD ...
   no DISC : No disc loaded.
   OPEN : The disc tray is open.
   LOAD : Player is loading disc information.

Description-Rear Panel



Rear Panel

1. DIGITAL AUDIO OUT JACKS
- Use either an optical or coaxial digital cable to connect to a compatible Dolby Digital receiver. Use to connect to an A/V Amplifier that contains a Dolby Digital or DTS decoder.

2. ANALOG AUDIO OUT JACKS
- Connect to the Audio input jacks of your television, audio/video receiver, or VCR.

3. VIDEO OUT JACK
- Use a video cable to connect to the Video input jack on your television.
- The VIDEO OUT SELECT switch must be set to the 525I(480I) or S-VIDEO position.

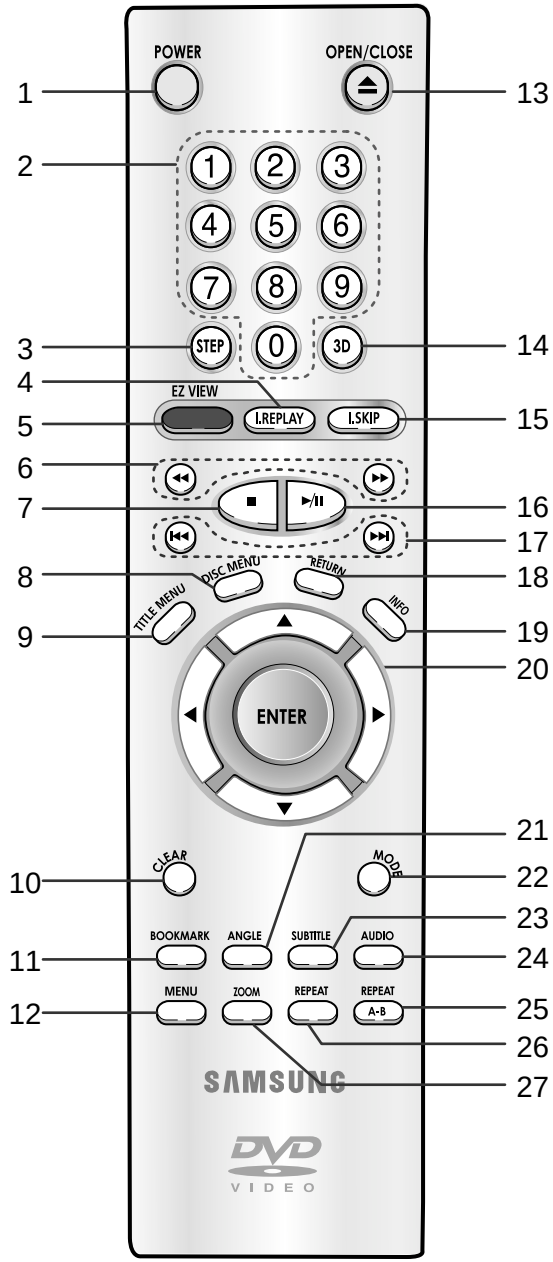
4. S-VIDEO OUT JACK
- Use the S-Video cable to connect this jack to the S-Video jack on your television for a higher quality picture.
- The VIDEO OUT SELECT switch must be set to the S-VIDEO position.

5. COMPONENT VIDEO OUT JACKS
- Use these jacks if you have a TV with Component Video in jacks. These jacks provide Pr, Pb and Y video. Along with S-Video, Component Video provides the best picture quality.
- If 525P(480P) VIDEO is selected, progressive scan mode will work.
- If 525I(480I) VIDEO is selected, interlaced scan mode will work.

6. VIDEO OUT SELECT SWITCH
- Use this switch to set video out.
- If 525P(480P) VIDEO is selected, VIDEO and S-VIDEO will not work.

Important Note

- Consult your TV User's Manual to find out if your TV supports Progressive Scan. If Progressive Scan is supported, follow the TV User's Manual's instructions regarding Progressive Scan settings in the TV's menu system.
- If 525P(480P) VIDEO OUT is selected, VIDEO and S-VIDEO will not work.
- Select the VIDEO OUT SELECT switch in the Stop or Power Off mode.



DVD Function Buttons

1. DVD POWER Button
- Turns the power on or off.

2. NUMBER Buttons

3. STEP Button
- Advances play one frame at a time.

4. I.REPLAY Button
- This function is used to replay the previous 10 seconds of the movie from the current position.

5. EZ VIEW Button
- Easy View can convert Letter Box images to full screen viewing on your conventional TV.

6. SEARCH Buttons (◀◀ / ▶▶)
- Allows you to search forward/backward through a disc.

7. STOP Button (■)

8. DISC MENU Button
- Brings up the Disc menu.

9. TITLE MENU Button
- Brings up the Title menu.

10. CLEAR Button
- Use to remove menus or status displays from the screen.

11. BOOKMARK Button

12. MENU Button
- Brings up the DVD player's setup menu.

13. OPEN/CLOSE Button
- To open and close the disc tray.

14. 3D Button

15. I.SKIP Button
- This function skips playback ahead 10 seconds.

16. PLAY/PAUSE Button (▶/II)
- Begin/Pause disc play.

17. SKIP Buttons (⏮ / ⏭)
- Use to skip the title, chapter, or track.

18. RETURN Button
- Returns to a previous menu.

19. INFO Button
- Displays the current disc mode.

20. ENTER/DIRECTION Button (UP/DOWN or LEFT/RIGHT Buttons)
- This button functions as a toggle switch.

21. ANGLE Button
- Use to access various camera angles on a DVD.

22. MODE Button
- Allows you to program a specific order.

23. SUBTITLE Button

24. AUDIO Button
- Use this button to access various audio functions on a disc.

25. REPEAT A-B Button
- Use to mark a segment to repeat between A and B.

26. REPEAT Button
- Allows you to repeat play a title, chapter, track, or disc.

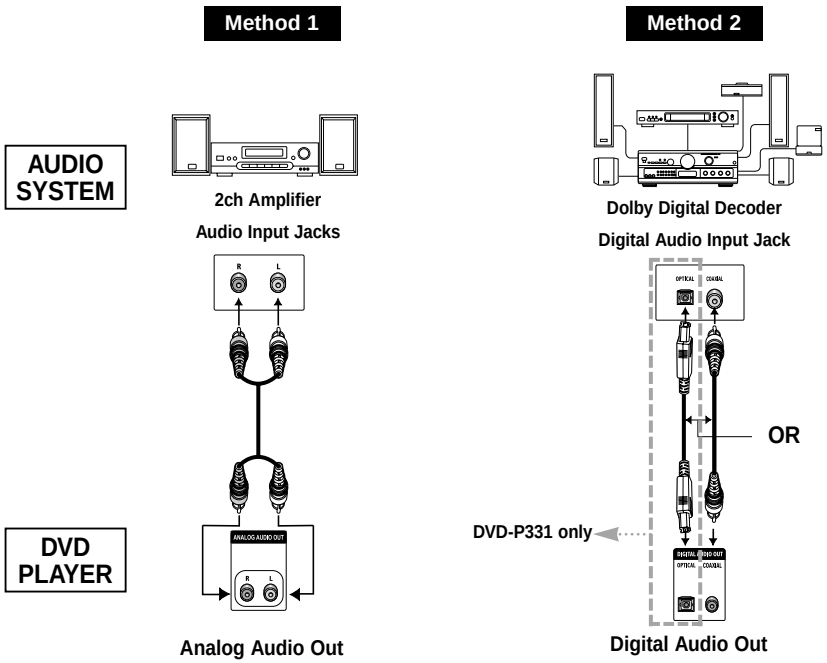
27. ZOOM Button
- Enlarges the DVD picture.

The following show examples of connections commonly used to connect the DVD player with a TV and other components.

Before Connecting the DVD Player

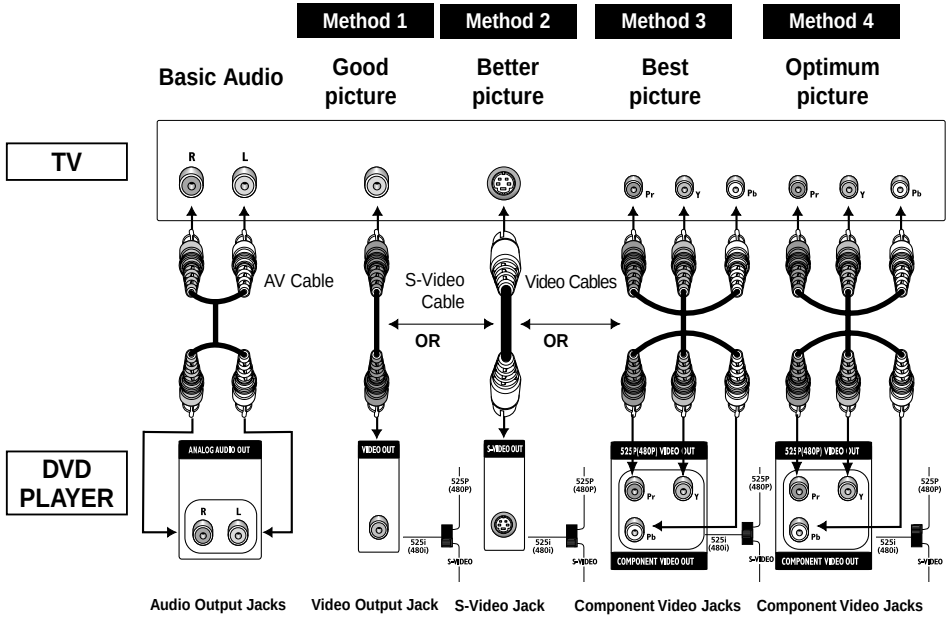
- Always turn off the DVD player, TV, and other components before you connect or disconnect any cables.
- Refer to the owner's manual of the additional components you are connecting for more information on those particular components.

Connection to an Audio System



Connection to a TV (For Video)

TV (Normal, Widescreen, Projection, etc..)



Method 1 DVD Player + TV with Video Input Jack
(The VIDEO OUT SELECT switch must be set to the S-VIDEO position.)

Method 2 DVD Player + TV with S-Video Input Jack
(The VIDEO OUT SELECT switch must be set to the S-VIDEO position.)

Method 3 DVD Player + TV with Component Video Jacks
(The VIDEO OUT SELECT switch must be set to the 525I(480I) position.)

Method 4 DVD Player + TV with Progressive Scan Jacks.
(The VIDEO OUT SELECT switch must be set to the 525P(480P) position).
- If 525P(480P) VIDEO OUT is selected, VIDEO and S-VIDEO will not work.
- Depending on your TV, your hookup for Method 4 may differ from the illustration.

Important Note

Consult your TV User's Manual to find out if your TV supports Progressive Scan. If Progressive Scan is supported, follow the TV User's Manual's instructions regarding Progressive Scan settings in the TV's menu system.

Before Play

- Turn on your TV and press the TV/VIDEO button to select the video mode.
- Turn on your Audio System and select AUX, CD or DVD.

After plugging in the player, the first time you press the DVD POWER button, this screen comes up :
If you want to select the language, press a NUMBER button.
(This screen will only appear the very first time you plug in the player.)

SELECT MENU LANGUAGE
Press 1 for English
Touche 2 pour Français
Drücken Sie 3 für Deutsch
Pulsar 4 para Español
Premere 5 per Italiano
Toets 6 voor Nederlands

Play

1 Press the OPEN/CLOSE button.
The STANDBY indicator light goes out and the tray opens.

2 Place a disc gently into the tray with the disc's label facing up.

3 Press the PLAY/PAUSE (▶/II) button or OPEN/CLOSE button to close the disc tray.

4 Stopping Play
Press the STOP (■) button during play.

5 Removing Disc
Press the OPEN/CLOSE button.

6 Pausing Play
Press the PLAY/PAUSE (▶/II) or STEP button on the remote during play.
- Screen stops, no sound.
- To resume again, press PLAY/PAUSE (▶/II) button once again.

7 Step Motion Play (Only DVD)
Press the STEP button on the remote during play.
- Each time the button is pressed, a new frame will appear.
- No sound is heard during STEP mode.
- Press PLAY/PAUSE (▶/II) to resume normal play.
(You can only perform step motion play in the forward direction.)

8 Slow Motion Play (Only DVD)
Press the ▶▶ button on the remote during PAUSE or STEP mode.
- By pressing the ▶▶ button, you can select slow motion play for 1/8, 1/4 or 1/2 of normal speed.
- No sound is heard during slow mode.
- Press PLAY/PAUSE (▶/II) to resume normal play.
- When playing a DVD, reverse slow motion play will not work.

RESUME function

When you stop disc play, the player remembers where you stopped, so when you press PLAY (▶/II) again, it will pick up where you left off. (unless the disc is removed, the STOP (■) button is pressed twice or the player is unplugged.)

NOTE

- If the player is left for 5 minutes in pause mode, it will stop.
- If the player is left in the stop mode for more than 30 minutes, the power will automatically shut off. (Automatic Power-Off Function)
- If the player is left in the stop mode for more than one minute without any user interaction, a screen saver will be activated, and the TV screen will fade in and out repeatedly. Press the PLAY (▶/II) button to resume normal play.
- This ⊘ icon indicates an invalid button press.

Using the Search & Skip Functions

During play, you can search quickly through a chapter or track or use the skip function to jump to the next selection.

Searching through a Chapter or Track

1 During play, press the ◀◀ or ▶▶ button on the remote.

- Press the ▶▶ or ◀◀ button on the remote and press again to search at a faster speed on the DVD, CD.

DVD	2X, 4X, 8X, 16X, 32X, 128X
CD	2X, 4X, 8X

Skipping Tracks

1 During play, press the |◀◀ or ▶▶| button.

- When playing a DVD, if you press the ▶▶| button, it moves to the next chapter. If you press the |◀◀ button, it moves to the beginning of the chapter. One more press makes it move to the beginning of the previous chapter.
- When playing a CD, if you press the ▶▶| button, it moves to next track. If you press the |◀◀ button, it moves to the beginning of the track. One more press makes it move to the beginning of the previous track.

Using the Display Function

When Playing a DVD/CD

1 During play, press the INFO button on the remote.

2 Use the UP/DOWN buttons to select the desired item.

3 Use the LEFT/RIGHT buttons to make the desired setup.

- You may use the number buttons of the remote control to directly access a title, chapter or to start the playback from the desired time.

4 To make the screen disappear, press the INFO button again.

Title To access the desired title when there is more than one in the disc. For example, if there is more than one movie on a DVD, each movie will be identified.

Chapter Most DVD discs are recorded in chapters so that you can quickly find a specific passage. The example shows that chapter 38 is being played.

Time Allows playback of the film from a desired time. You must enter the starting time as a reference.

Audio Refers to the language of the film soundtrack. In the example, the soundtrack is played in English 5.1CH. A DVD disc can have up to eight different soundtracks.

Subtitle Refers to the subtitle languages available in the disc. You will be able to choose the subtitles language or, if you prefer, turn them off from the screen. A DVD disc can have up to 32 different subtitles.

3D Sound A surround sound effect is generated using only two front speakers.

DVD

CD

NOTE

What is a Chapter?
Each Title on a DVD is usually divided into chapters (similar to tracks on an audio CD).

What is a Title?
A DVD may contain several different titles. For example, if a disc contains four different movies, each might be considered a title.

Using the Disc and Title Menu

Using the Disc Menu

1 During the playback of a DVD disc, press the MENU button on the remote.

2 Select **Disc Menu** using the UP/DOWN buttons, then press the RIGHT or ENTER button.

Using the Title Menu

1 During the playback of a DVD disc, press the MENU button on the remote.

2 Select **Title Menu** using the UP/DOWN buttons, then press the RIGHT or ENTER button.

NOTE

- Depending on the disc, the Title and Disc Menus may not work.
- Title Menu will only be displayed if there are at least two titles in the disc.
- You can also use the Title Menu and the Disc Menu, using the TITLE MENU and the DISC MENU buttons on the remote.

Using the Function Menu

Using the Function Menu

1 Press the MENU button during playback.

2 Use the UP/DOWN buttons to highlight Function, then press the RIGHT or ENTER button.

3 Function selection screen appears, Info, Zoom, Bookmark, Repeat and EZ View.
- Info (See Page 19)
- Zoom (See Page 32)
- Bookmark (See Page 31)
- Repeat (See Page 22)
- EZ View (See Page 24~25)

4 Use the UP/DOWN button to highlight one of the 5 functions. Then press the RIGHT or ENTER button to access the function.

NOTE

- You can also directly select these functions using their respective buttons on the remote.

Repeat Play

Repeat the current track, chapter, title, a chosen section (A-B), or all of the disc.

When playing a DVD

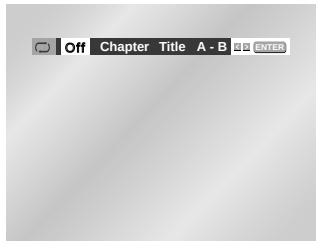
1 Press the REPEAT button on the remote.
Repeat screen appears.

2 Select Chapter, Title or A-B using the LEFT/RIGHT buttons.

3 Press ENTER.

4 To return to normal play, press REPEAT again, then press the LEFT/RIGHT buttons to select Off and press ENTER.

DVD



CD

* REPEAT A-B button
- Press the REPEAT A-B button to select the point where the function starts. (A)
- Press the REPEAT A-B button to select the point where the function ends. (B)
- To terminate the function, press the 'CLEAR' button or the 'REPEAT A-B' button again.
- A-B REPEAT does not allow you to set point (B) until at least 5 seconds has elapsed after point (A) has been set.

NOTE

- DVD repeats play by chapter or title, CD repeat play by disc or track.
- Depending on the disc, the Repeat function may not work.
- If the title or track is completed before marking the end (B), the end of title or track becomes B automatically.
- A-B REPEAT does not allow you to set point (B) until at least 5 seconds has elapsed after point (A) has been set.

Adjusting the Aspect Ratio (EZ View)

To play back using aspect ratio (DVD)

1 Press the EZ VIEW button.
- The screen size changes when the button is pressed repeatedly.
- The screen zoom mode operates differently depending on the screen setting in the initial setup menu.
- To ensure correct operation of the EZ VIEW button, you should set the correct aspect ratio in the initial setup (See page 41).

If you are using a 16:9 TV

❶ **For 16:9 aspect ratio discs**

- **Normal Wide**
  Displays the content of the DVD title in 16:9 aspect ratio.
- **Screen Fit**
  The top and bottom of the screen are cut off. When playing a 2.35:1 aspect ratio disc, the black bars at the top and bottom of the screen will disappear. The picture will look vertically stretched. (Depending on the type of disc, the black bars may not disappear completely.)
- **Zoom Fit**
  The top, bottom, left and right of the screen are cut off and the central portion of the screen is enlarged.

❷ **For 4:3 aspect ratio discs**

- **Normal Wide**
  Displays the content of the DVD title in 16:9 aspect ratio.
  The picture will look horizontally stretched.
- **Screen Fit**
  The top and bottom of the screen are cut off and the full screen appears. The picture will look vertically stretched.
- **Zoom Fit**
  The top, bottom, left and right of the screen are cut off and the central portion of the screen is enlarged.
- **Vertical Fit**
  When a 4:3 DVD is viewed on a 16:9 TV, black bars will appear at the left and right of the screen in order to prevent the picture from looking horizontally stretched.

Adjusting the Aspect Ratio (EZ View)

If you are using a 4:3 TV

❶ **For 16:9 aspect ratio discs**

- **4:3 Letter Box**
  Displays the content of the DVD title in 16:9 aspect ratio.
  The black bars will appear at the top and bottom of the screen.
- **4:3 Pan Scan**
  The left and right of the screen are cut off and displays the central portion of the 16:9 screen.
- **Screen Fit**
  The top and bottom of the screen are cut off and the full screen appears. The picture will look vertically stretched.
- **Zoom Fit**
  When a 4:3 DVD is viewed on a 16:9 TV, black bars will appear at the left and right of the screen in order to prevent the picture from looking horizontally stretched.

❷ **For 4:3 aspect ratio discs**

- **Normal Screen**
  Displays the content of the DVD title in 4:3 aspect ratio.
- **Screen Fit**
  The top and bottom of the screen are cut off and the full screen appears. The picture would look vertically stretched.
- **Zoom Fit**
  The top, bottom, left and right of the screen are cut off and the central portion of the screen is enlarged.

NOTE

• This function may behave differently depending on the type of disc.

Slow Repeat play

This feature allows you slowly repeat scenes containing sports, dancing, musical instruments being played etc. so you can study them more closely.

When playing a DVD

1 During play, press the PLAY/PAUSE (▶/II) button.

2 Press the ▶▶ button to choose the play speed between 1/8X, 1/4X, and 1/2X of normal.

3 Press the REPEAT A-B button to select the point where the function starts. (A)

4 Press the REPEAT A-B button to select the point where the function ends. (B)

NOTE

• The disc will play from A to B repeatedly at the speed you chose.
• To terminate the function, press the 'CLEAR' button or the 'REPEAT A-B' button again.
• A-B REPEAT does not allow you to set point (B) until at least 5 seconds has elapsed after point (A) has been set.

Selecting the Audio Language

You can select a desired language quickly and easily with the AUDIO button.

Using the AUDIO button

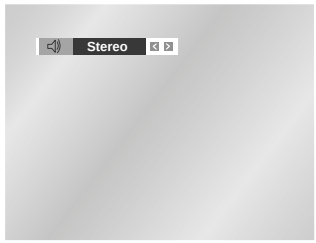
1 Press the AUDIO button.

2 Use the LEFT/RIGHT buttons to select the desired language on a DVD.

- The audio languages are represented by abbreviations.

3 Use the LEFT/RIGHT buttons to select Stereo, LEFT or RIGHT. (On CD)

DVD



NOTE

- This function depends on what languages are encoded on the disc and may not work with all DVDs.
- A DVD disc can contain up to 8 audio languages.
- **How to have the same audio language come up whenever you play a DVD;**
  Refer to “Setting Up the Language Features” on page 39.

Selecting the Subtitle Language

You can select a desired subtitle quickly and easily with the SUBTITLE button.

Using the SUBTITLE button

1 Press the SUBTITLE button.

2 Use the LEFT/RIGHT buttons to select the desired subtitle language.

3 Use the UP/DOWN buttons to determine whether or not the subtitle will be displayed.

- Initially, the subtitling will not appear on screen.
- The subtitle languages are represented by abbreviations.

Changing the Subtitle color

1 Press the MODE button to change the subtitle color only when the player is in progressive video mode.

NOTE

- This function depends on what languages are encoded on the disc and may not work with all DVDs.
- A DVD disc can contain up to 32 subtitle languages.
- **How to have the same subtitle language come up whenever you play a DVD;**
  Refer to “Setting Up the Language Features” on page 39.

Changing the Camera Angle

When a DVD contains multiple angles of a particular scene, you can select the Angle function.

Using the ANGLE button

Press the ANGLE button to see if an ANGLE ( ) mark is present at the upper left hand corner of the screen.

1 When an ANGLE mark is shown, press the ANGLE button, then an ANGLE select icon will appear at the upper left hand corner of the screen.

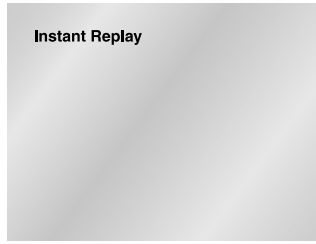
2 Use the LEFT/RIGHT buttons to select the desired screen angle.

3 To turn off the display, press the ANGLE button again.

Using the Instant Replay/Skip Function

Using the Instant Replay function (DVD)

If you miss a scene, you can see it again using this function.

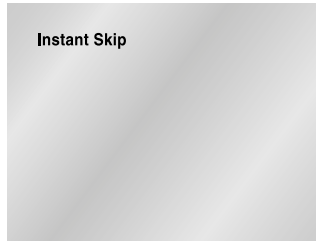


1 If you press the I.REPLAY button, the current scene moves backward about 10 seconds, and plays back.

* Depending on the disc, the Instant Replay function may not work.

Using the Instant Skip function (DVD)

Use this function to skip playback 10 seconds ahead of the current scene.



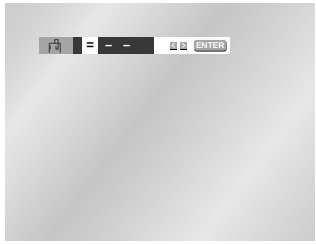
1 Press the I.SKIP button.

- Playback will skip ahead 10 seconds.
- Depending on the disc, this feature may not work.

Using the Bookmark Function

This feature lets you bookmark sections of a DVD so you can quickly find them at a later time.

Using the Bookmark Function (DVD)



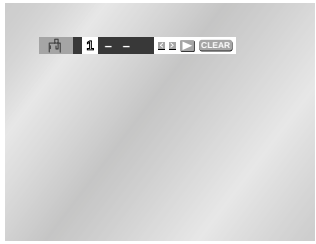
1 During play, press the BOOKMARK button on the remote. The Bookmark icons will be displayed.

2 Use the LEFT/RIGHT buttons to move to the desired bookmark icon.

3 When you reach the scene you want to mark, press the ENTER button. The icon will change to a number (1, 2, or 3).

4 Press the BOOKMARK button to turn off the display.

Recalling a Marked Scene



1 During play, press the BOOKMARK button on the remote.

2 Use the LEFT/RIGHT buttons to select a marked scene.

3 Press the PLAY/PAUSE (▶/II) buttons to skip to the marked scene.

Clearing a Bookmark

1 During play, press the BOOKMARK button on the remote.

2 Use the LEFT/RIGHT buttons to select the bookmark number you want to delete.

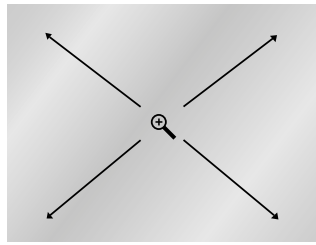
3 Press the CLEAR button to delete a bookmark number. Press the BOOKMARK button to turn off the display.

NOTE

- Up to three scenes may be marked at a time.
- Depending on the disc, the Bookmark function may not work.

Using the Zoom & 3D Sound Functions

Using the Zoom Function (DVD)

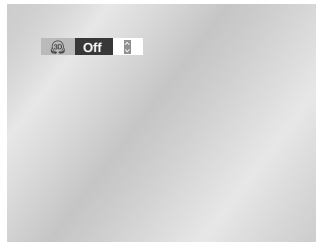


1 During play or pause mode, press the ZOOM button on the remote.
A zoom mark will be displayed on screen.

2 Use the UP/DOWN or LEFT/RIGHT buttons to select the part of the screen you want to zoom in on.

3 Press the ENTER button.
- During DVD play, press ENTER to zoom in 2X/4X/2X/Normal in order.

Using the 3D Sound Function



The simulated surround effect depends on the disc contents. If you connect the unit to your stereo system, you can enhance sound quality and produce a greater surround effect.
This feature is useful when you are using the DVD player with a two channel stereo through the analog outputs.
(Discs which are recorded with LPCM or DTS will not work. When the DIGITAL OUTPUT is set to BITSTREAM in the SETUP MENU, the 3D Sound function will not work.)

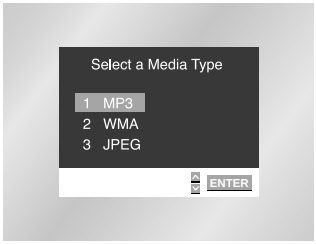
1 During play, press the 3D button.
The 3D SOUND mark will be displayed on screen. (Be sure the DIGITAL OUTPUT is set to PCM.)

2 Press the UP/DOWN buttons to turn the 3D Sound feature on or off.

NOTE

- 3D Sound is possible only on discs recorded using DOLBY SURROUND or DOLBY DIGITAL. However, some of these discs do not contain rear channel sound signals.
- Depending on the disc, the Zoom and 3D Sound function may not work.

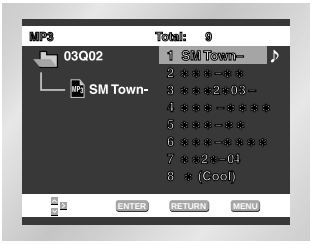
When an MP3/WMA Disc is inserted into the DVD player, the first song file of the first folder plays.



- If more than two file extensions are present, select the media of your choice.
- To change the currently playing media, press the STOP (■) button twice and then press the MENU button.
- If no button on the remote controller is pressed for 60 seconds, the menu will disappear and the selected item will be played.

MP3/WMA Play Function

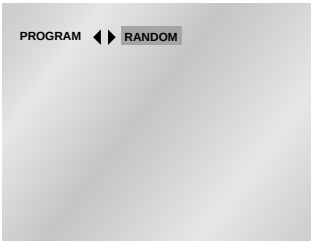
1 When the first song file is playing, the music folder menu will appear on the right side of the screen.
Up to 8 music folders can be displayed at a time. If you have more than 8 folders on a disc, press the LEFT/RIGHT buttons to bring them up on the screen.



2 Use the UP/DOWN buttons to select the desired music folder, then press ENTER.
Use the UP/DOWN buttons again to select a song file. Press ENTER to begin playback of the song file.

Program/Random playback

Press the MODE button to switch between the RANDOM and PROGRAM modes. See page 34 for more information on these modes.



NOTE

- Press the REPEAT button to hear only music continuously and press it once again to release.
- PROGRAM/RANDOM playback cannot be used if the disc contains more than two types of file extensions.

CD-R MP3/WMA discs

When playing CD-R/MP3 or WMA discs, please follow all the recommendations for CD-R above, plus the comments below:

- **Your MP3 or WMA files should be ISO 9660 or JOLIET format.**
  ISO 9660 format and Joliet MP3 or WMA files are compatible with Microsoft's DOS and Windows, and with Apple's Mac. These two formats are the most widely used.

- **When naming your MP3 or WMA files do not exceed 8 characters, and place ".mp3, .wma" as the file extension.**
  General name format of: Title.mp3. or Title.wma. When composing your title, make sure that you use 8 characters or less, have no spaces in the name, and avoid the use of special characters including: (.,/,\,=,+).

- **Use a decompression transfer rate of at least 128 Kbps when recording MP3 files.**
  Sound quality with MP3 files basically depends on the rate of compression/decompression you choose. Getting audio CD quality sound requires an analog/digital sampling rate, that is conversion to MP3 format, of at least 128 Kbps and up to 160 Kbps. However, choosing higher rates, like 192 Kbps or more, only rarely give better sound quality.
  Conversely, files with decompression rates below 128 Kbps will not be played properly.

- **Use a decompression transfer rate of at least 64Kbps when recording WMA files.**
  Sound quality with WMA files basically depends on the rate of compression/decompression you choose. Getting audio CD quality sound requires an analog/digital sampling rate, that is conversion to WMA format, of at least 64Kbps and up to 192Kbps.
  Conversely, files with decompression rates below 64Kbps or over 192Kbps will not be played properly.

- **Do not try recording copyright protected MP3 files.**
  Certain "securized" files are encrypted and code protected to prevent illegal copying. These files are of the following types: Windows Media™ (registered trade mark of Microsoft Inc) and SDMI™ (registered trade mark of The SDMI Foundation). You cannot copy such files.

- **Important:** The above recommendations cannot be taken as a guarantee that the DVD player will play MP3 recordings, or as an assurance of sound quality.
  You should note that certain technologies and methods for MP3 file recording on CD-Rs prevent optimal playback of these files on your DVD player (degraded sound quality and in some cases, inability of the player to read the files).

- This unit can play a maximum of 500 files and 300 folders per disc.

Program Play & Random Play

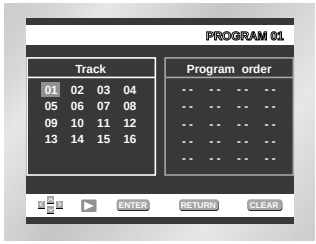
Program Play (CD/MP3/WMA)

1 Press the MODE button.

2 Use the LEFT/RIGHT buttons to select PROGRAM. Press the ENTER button.

3 Use the LEFT/RIGHT/UP/DOWN buttons to select the first track to add to the program. Press the ENTER button. The selection numbers appear in the Program Order box.

4 Press the PLAY/PAUSE (▶/II) button. The disc will be played in programmed order.



Random Play (CD/MP3/WMA)

1 Press the MODE button.

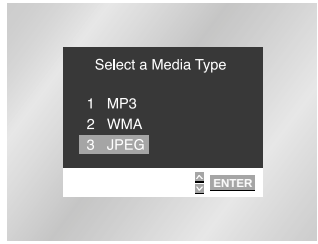
2 Use the LEFT/RIGHT buttons to select RANDOM. Press the ENTER button. The disc will be played in random order.

NOTE

- Depending on the disc, the Program and Random Play functions may not work.
- To resume normal play, press the CLEAR button.
- PROGRAM/RANDOM playback cannot be used if the disc contains more than two types of file extensions.

Picture CD Playback

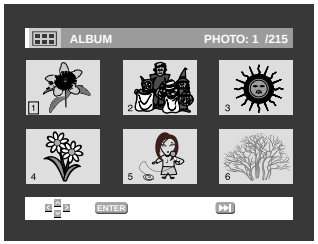
- Select JPEG in the menu to view a Photo CD.
- To change the currently playing media, press the STOP (■) button twice and then press the DISC MENU button.
- If no button on the remote controller is pressed for 60 seconds, the menu will disappear and the selected item will be played.



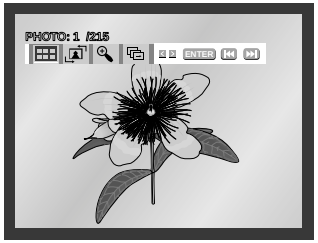
1 Open the disc tray.

2 Load the disc on the tray.
- Load the disc with the labeled side up.

3 Close the tray.
- The tray closes and you should get a screen that looks like the one below.

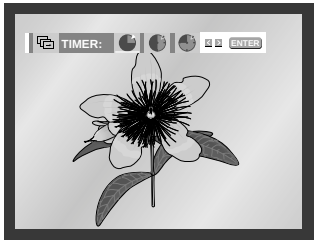


- Use the UP/DOWN or LEFT/RIGHT buttons on the remote controller to select the picture you want to view and then press the ENTER button. (Press the PLAY/PAUSE (▶/II) button if you want to play it in the Slide Show mode.)
- To see the next 6 pictures, press the ▶▶| button.
- To see the previous 6 pictures, press the |◀◀ button.



- : Return to the Album Screen.
- : Each time the ENTER button is pressed, the picture rotates 90 degrees clockwise.
- : Each time the ENTER button is pressed, the picture is enlarged up to 4X. (Normal → 2X → 4X → 2X → Normal)
- : The unit enters slide show mode.

*Press the RETURN button to return to the album screen.
*Before the Slide Show can begin, the picture interval must be set.



- : When this icon is selected and ENTER is pressed, the pictures change automatically with about an 6 second interval.
- : The pictures change automatically with about an 12 second interval.
- : The pictures change automatically with about an 18 second interval.

*Depending on the file size, each interval between images may take longer or shorter than the manual suggests.

NOTE

- Press the TITLE MENU button to return to the album screen.
- Press the RETURN button to return to the slide show.
- If no buttons on the remote controller pressed for 10 seconds, the menu will disappear. Press the UP/DOWN or LEFT/RIGHT buttons on the remote controller to display the menu again.

Picture CD Playback

CD-R JPEG Discs

- Only files with the ".jpg" and ".JPG" extensions can be played.
- If the disc is not closed, it will take longer to start playing and not all of the recorded files may be played.
- Only CD-R discs with JPEG files in ISO 9660 or Joliet format can be played.
- The name of the JPEG file may not be longer than 8 characters and should contain no blank spaces or special characters (. / = +).
- Only a consecutively written multisession disc can be played. If there is a blank segment in the multisession disc, the disc can be played only up to the blank segment.
- A maximum of 500 images can be stored on a single CD.
- Only Kodak Picture CDs can be played.
- When playing a Kodak Picture CD, only the JPEG files in the pictures folder can be played.
- Picture discs other than Kodak Picture CD may take longer to start playing or may not play at all.
- If a number of files in 1 Disc is over 500, only 500 JPEG file can be played.
- If a number of folders in 1 Disc is over 300, only JPEG files in 300 folders can be played.

Using the Setup Menu

The Setup menu lets you customize your DVD player by allowing you to select various language preferences, set up a parental level, even adjust the player to the type of television screen you have.

1 With the unit in Stop mode, press the MENU button on the remote. Select **Setup** using UP/DOWN buttons, then press the RIGHT or ENTER button.

❶ **Language Setup :** Setup of the Language.

❷ **Audio Setup :** Setup of the Audio Options

❸ **Display Setup :** Setup of the Display Options
Use to select which type of screen you want to watch and several display options.

❹ **Parental Setup :** Setup of the Parental Level
Allows users to set the level necessary to prevent children from viewing unsuitable movies such as those with violence, adult subject matter, etc.

2 Use the UP/DOWN buttons on the remote to access the different features.

3 Press the ENTER button to access the sub features.

To make the setup screen disappear after setting up, press the MENU button again.

NOTE

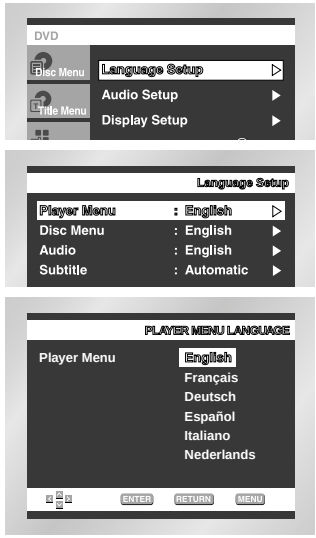
Depending on the disc, some Setup Menu selections may not work.

Setting Up the Language Features

If you set the player menu, disc menu, audio and subtitle language in advance, they will come up automatically every time you watch a movie.

Using the Player Menu Language

e.g Setting up in English.



1 With the unit in Stop mode, press the MENU button.

2 Select **Setup** using UP/DOWN buttons, then RIGHT or ENTER button.

3 Select **Language Setup** using UP/DOWN buttons, then press the RIGHT or ENTER button.

4 Select **Player Menu** using UP/DOWN buttons, then press the RIGHT or ENTER button.

5 Use the UP/DOWN buttons to select '**English**'.

6 Press the ENTER button.
- English is selected and the screen returns to SETUP menu.
- To make the SETUP menu disappear, press the RETURN or LEFT button.

Using the Disc Menu Language

This function changes the text language only on the disc menu screens.

e.g Setting up in English.

1 With the unit in Stop mode, press the MENU button.

2 Select **Setup** using UP/DOWN buttons, then RIGHT or ENTER button.

3 Select **Language Setup** using UP/DOWN buttons, then press the RIGHT or ENTER button.

4 Select **Disc Menu** using UP/DOWN buttons, then press the RIGHT or ENTER button.

5 Use the UP/DOWN buttons to select '**English**'.
- Select "Others" if the language you want is not listed.

6 Press the ENTER button.
- English is selected and the screen returns to SETUP menu.

Using the Audio Language

1 With the unit in Stop mode, press the MENU button.

2 Select **Setup** using UP/DOWN buttons, then RIGHT or ENTER button.

3 Select **Language Setup** using UP/DOWN buttons, then press the RIGHT or ENTER button.

4 Select **Audio** using UP/DOWN buttons, then press the RIGHT or ENTER button.

5 Press the UP/DOWN buttons to select '**English**' .
- Select "Original" if you want the default soundtrack language to be the original language the disc is recorded in.
- Select "Others" if the language you want is not listed.

6 Press the ENTER button.
- English is selected and the screen returns to SETUP menu.

Using the Subtitle Language

1 With the unit in Stop mode, press the MENU button.

2 Select **Setup** using UP/DOWN buttons, then RIGHT or ENTER button.

3 Select **Language Setup** using UP/DOWN buttons, then press the RIGHT or ENTER button.

4 Select **Subtitle** using UP/DOWN buttons, then press the RIGHT or ENTER button.

5 Use the UP/DOWN buttons to select '**English**'.
- Select "Automatic" if you want the subtitle language to be the same as the language selected as the audio preference.
- Select "Others" if the language you want is not listed. Some discs may not contain the language you select as your initial language; in that case the disc will use its original language setting.

6 Press the ENTER button.
- English is selected and the screen returns to SETUP menu.

NOTE

- If the selected language is not recorded on the disc, the original pre-recorded language is selected.
- **How to make the SETUP menu disappear or return to menu screen during set up;** Press RETURN or LEFT button.

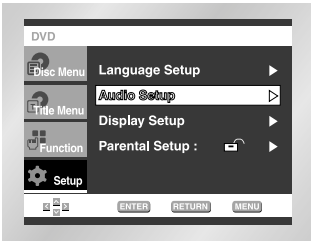
Setting Up the Audio Options

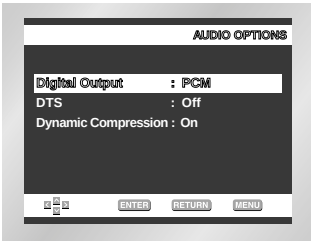
1 With the unit in Stop mode, press the MENU button.

2 Select **Setup** using UP/DOWN buttons, then RIGHT or ENTER button.

3 Select **Audio Setup** using UP/DOWN buttons, then press the RIGHT or ENTER button.

4 Use the UP/DOWN buttons to select the desired item. Then press the RIGHT or ENTER button.





❶ Digital Output

1. PCM : Converts to PCM(2CH) 48kHz audio. Select PCM when using the Analog Audio Outputs.

2. Bitstream : Converts to Dolby Digital Bitstream (5.1CH). Select Bitstream when using the Digital Audio Output.

NOTE : Be sure to select the correct Digital Output or no audio will be heard.

❷ DTS

1. Off : Doesn't output digital signal.

2. On : Outputs DTS Bitstream via digital output only. Select DTS when connecting to a DTS Decoder.

❸ Dynamic Compression

1. On : To select dynamic compression.

2. Off : To select the standard range.

NOTE

- **How to make the SETUP menu disappear or return to menu screen during set up;** Press RETURN or LEFT button.
- Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.
- "DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

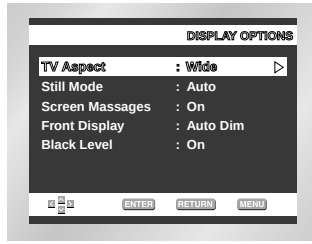
Setting Up the Display Options

1 With the unit in Stop mode, press the MENU button.

2 Select **Setup** using UP/DOWN buttons, then RIGHT or ENTER button.

3 Select **Display Setup** using UP/DOWN buttons, then press the RIGHT or ENTER button.

4 Use the UP/DOWN buttons to select the desired item. Then press the RIGHT or ENTER button.



❶ TV Aspect

Depending on the type of television you have, you may want to adjust the screen setting (aspect ratio).

1. 4:3 Letter Box : Select when you want to see the total 16:9 ratio screen DVD supplies, even though you have a TV with a 4:3 ratio screen. Black bars will appear at the top and bottom of the screen.

2. 4:3 Pan Scan : Select this for conventional size TVs when you want to see the central portion of the 16:9 screen. (Extreme left and right side of movie picture will be cut off.)

3. 16:9 Wide : You can view the full 16:9 picture on your widescreen TV.

❷ Still Mode

These options will help prevent picture shake in still mode and display small text clearer.

1. Auto : When selecting Auto, Field/Frame mode will be automatically converted.

2. Field : Select this feature when the screen shakes in the Auto mode.

3. Frame : Select this feature when you want to see small letters more clearly in the Auto mode.

❸ Screen Messages

Use to turn on-screen messages On or Off.

❹ Front Display

Adjust the brightness of the unit's front panel display.

1. Auto Dim : Makes the Front Panel Display dim automatically when playing a DVD.

2. Bright : Makes the Front Panel Display bright.

3. Dim : Makes the Front Panel Display dim.

❺ Black Level

Adjusts the brightness of the screen.(On/Off)

NOTE

- **How to make the SETUP menu disappear or return to menu screen during set up;** Press the RETURN or LEFT button.

Setting Up the Parental Control

The Parental Control function works in conjunction with DVDs that have been assigned a rating - which helps you control the types of DVDs that your family watches.
There are up to 8 rating levels on a disc.

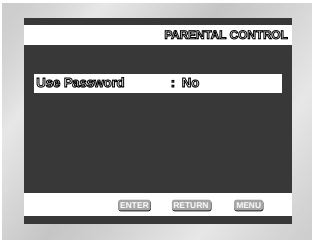
1 With the unit in Stop mode, press the MENU button.

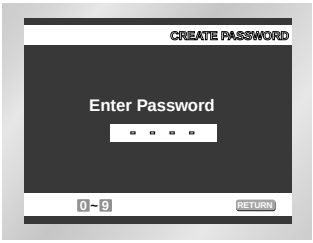
2 Select **Setup** using UP/DOWN buttons, then RIGHT or ENTER button.

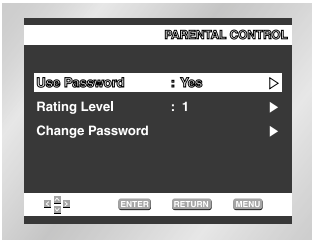
3 Select **Parental Setup** using UP/DOWN buttons, then press the RIGHT or ENTER button.

4 Use RIGHT or ENTER to select Yes if you want to use a password. The Enter Password screen appears.

5 Enter your password. The Re-enter Password screen appears to confirm the password.
Enter your password again.
The Parental Control screen appears.



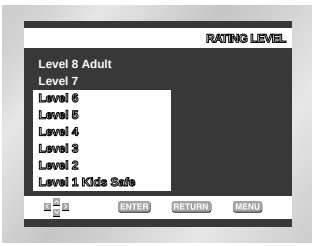




About the Rating Level ;
The Rating Level will work only when Use Password is set to Yes. To unlock the player, use UP/DOWN to select No. Use RIGHT or ENTER to select Rating level. Press ENTER.
- Use UP/DOWN to select the level(e.g. Level 6) and press ENTER. Discs that contain Level 7 will now not play.
- To cancel the rating level, use RIGHT or ENTER to select No in Use Password.

About the Change Password ;
- Use UP/DOWN to select Change Password.
  Press ENTER. The Change Password screen appears.
- Enter your new password. Re-enter the new password again.

e.g Setting up in LEVEL6.



NOTE

- **How to make the SETUP menu disappear or return to menu screen during set up;**
  Press RETURN or LEFT button.
- If you have forgotten your password, see Forget Password in the Troubleshooting Guide.

Troubleshooting

Before requesting service (troubleshooting), please check the following.

Problem	Action	Page
No operations can be performed with remote.	• Check the batteries in the remote. May need replacing. • Operate the remote control at a distance of no more than 20 feet. • Remove batteries and hold down one or more buttons for several minutes to drain the microprocessor inside the remote to reset it. Reinstall batteries and try remote again.	P5
Disc does not play.	• Ensure that the disc is installed with the label side facing up. • Check the region number of the DVD.	P8
5.1 channel sound is not being reproduced.	• 5.1 channel sound is reproduced only when the following conditions are met. : 1) The DVD player is connected with the proper amplifier 2) The disc is recorded with 5.1 channel sound. • Check whether the disc being played has the “Dolby 5.1 ch” mark on the outside. • Check if your audio system is connected and working properly. • In a SETUP Menu, is the Audio Output set to Bitstream?	P14 P40
The ⊘ icon appears on screen.	• The features or action cannot be completed at this time because: 1. The DVD’s software restricts it. 2. The DVD’s software doesn’t support the feature (e.g., angles). 3. The feature is not available at the moment. 4. You’ve requested a title or chapter number or search time that is out of range.	P17
Disc Menu doesn’t appear.	• Check if the disc has a Menu.	P37~38
Play mode differs from the Setup Menu selection.	• Some of the functions selected in the Setup Menu may not work properly if the disc is not encoded with the corresponding function.	P37~42
The screen ratio cannot be changed.	• The Screen Ratio is fixed on your DVDs.	P42
No audio.	• Make sure you have selected the correct Digital Output in the Audio Options Menu.	P41
Forgot password	• Press power on from a cold start with no disc in the unit. Press the STOP (■) and PLAY (▶/II) buttons simultaneously on the front panel for three seconds. The Select Menu Language display will appear. Select the desired language button. Press the MENU button on the remote control to select the Parental Mode. The Parental Mode is now unlocked as indicated on the display. Press the DOWN button to select Parental. Press ENTER and the Create Password display will appear. You can now set your rating level and change your password to a new number.	P40
If you experience other problems.	• Go to the contents and find the section of the instruction book that contains the explanations regarding the current problem, and follow the procedure once again. • If the problem still cannot be solved, please contact your nearest authorized service center.	

Specifications

General	Power Requirements	AC 120 V, 60 Hz
	Power Consumption	12 W
	Weight	6.2 lbs
	Dimensions	W 16.9 in x D 9.4 in x H 2.3 in
	Operating Temperature Range	+41°F to +95°F
	Operating Humidity Range	10 % to 75 %
Disc	DVD (DIGITAL VERSATILE DISC)	Reading Speed : 11.45 ft/sec. Approx. Play Time (Single Sided, Single Layer Disc) : 135 min.
	CD : 5" (COMPACT DISC)	Reading Speed : 3.9 to 4.6 ft/sec. Maximum Play Time : 74 min.
	CD : 3 1/2" (COMPACT DISC)	Reading Speed : 3.9 to 4.6 ft/sec. Maximum Play Time : 20 min.
Video Output	Composite Video	1 channel : 1.0 Vp-p (75 Ω load)
	Component Video	Y : 1.0 Vp-p (75 Ω load) Pr : 0.70 Vp-p (75 Ω load) Pb : 0.70 Vp-p (75 Ω load)
	S-VIDEO	Luminance Signal : 1.0 Vp-p (75 Ω load) Chrominance Signal : 0.286 Vp-p (75 Ω load)
Audio Output	2 Channel	L(1/L), R(2/R)
	*Frequency Response	48 kHz Sampling : 4 Hz to 22 kHz 96 kHz Sampling : 4 Hz to 44 kHz
	*S/N Ratio	110 dB
	*Dynamic Range	100 dB
	*Total Harmonic Distortion	0.004 %

*: Nominal specification

• Samsung Electronics Co., Ltd reserves the right to change the specifications without notice.
• Weight and dimensions are approximate.

Warranty

LIMITED WARRANTY TO ORIGINAL PURCHASER

This SAMSUNG brand product, as supplied and distributed by SAMSUNG ELECTRONICS AMERICA, INC. (SAMSUNG) and delivered new, in the original carton to the original consumer purchaser, is warranted by SAMSUNG against manufacturing defects in materials and workmanship for the following limited warranty period:

One (1) Year Parts and Labor

This limited warranty begins on the original date of purchase, and is valid only on products purchased and used in the United States, and does not include transportation, installation, removal or reinstallation. Warranty repairs must be performed by SAMSUNG's authorized service center. To receive warranty service, the original dated bill of sale must be presented upon request as proof of purchase to SAMSUNG or SAMSUNG's authorized service center. Transportation to and from the service center is the responsibility of the purchaser.

SAMSUNG will repair or replace this product, at our option and at no charge with new or reconditioned parts, if found to be defective during the limited warranty period specified above. The product must be returned during the warranty period with transportation charges prepaid to SAMSUNG's designated service center. Prior to returning any product for warranty service, the purchaser must contact SAMSUNG for problem determination and service procedures. SAMSUNG does not warrant uninterrupted or error-free operation of the product. All replaced parts and products become the property of SAMSUNG and must be returned to SAMSUNG. Replacement parts and products assume the remaining original warranty, or ninety (90) days, whichever is longer.

This limited warranty covers manufacturing defects in materials and workmanship encountered in normal, noncommercial use of this product and shall not apply to the following, including, but not limited to: damage which occurs in shipment; applications and uses for which this product was not intended; failures or problems which are caused by products or equipment not supplied by SAMSUNG; accidents, misuse, abuse, neglect, misapplication, fire, water, lightning or other acts of nature; incorrect electrical line voltage, fluctuations or surges; damage caused by improper or faulty installation; improper connection with any peripheral; product alteration or modification; improper or unauthorized repair; cosmetic damage or exterior finish; product with altered serial numbers; failure to follow operating instructions, customer adjustments, maintenance and environmental instructions that are covered and prescribed in the instruction book; use of non-SAMSUNG or unauthorized parts, supplies, accessories or equipment which damage this product or result in service problems; failures or problems due to incompatibility with other equipment.